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| <p>(51) International Patent Classification <sup>6</sup> :<br/>G06K 19/07, B42D 15/00</p>  | <p>A3</p> | <p>(11) International Publication Number: WO 97/21184</p> <p>(43) International Publication Date: 12 June 1997 (12.06.97)</p>  |  |
| <p>(21) International Application Number: PCT/US96/18769</p> <p>(22) International Filing Date: 21 November 1996 (21.11.96)</p> <p>(30) Priority Data:<br/>08/561,191 21 November 1995 (21.11.95) US</p> <p>(71) Applicant: ADVANCED DEPOSITION TECHNOLOGIES, INC. [US/US]; Myles Standish Industrial Park, Taunton, MA 02780 (US).</p> <p>(72) Inventors: WALTERS, Glenn, J.; 76 Bay View Road, Duxbury, MA 02331 (US). MCCORMICK, John, A.; One Parkhurst Drive, Lakeville, MA 02347 (US).</p> <p>(74) Agent: WOLF, Douglas, R.; Wolf, Greenfield &amp; Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210 (US).</p> |           | <p>(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p><b>Published</b><br/><i>With international search report.<br/>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report:<br/>21 August 1997 (21.08.97)</p> |  |

Security devices which are difficult to reproduce include a grid screen metallization pattern. The grid screen metallization pattern may be laid down over a hologram or diffraction grating formed as a surface relief pattern on a substrate, to form a visually identifiable, semi-transparent security device. Additionally, the metallization pattern may include resonant structures in which information about the security device is encoded. In some embodiments of these security devices, the metallization pattern is disposed in accurate registration with the underlying hologram or diffraction grating. These security devices are made by methods which include printing an oil pattern on the substrate. Areas on which oil is deposited do not receive metal during a metallization step. Since these methods do not use caustics, metallization patterns including features which would otherwise trap and hold caustics are possible.

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# INTERNATIONAL SEARCH REPORT

Internat. J. Application No.  
PCT/US 96/18769

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 G06K19/07 B42D15/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 G06K B42D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                 | Relevant to claim No. |
|------------|--|-----------------------|
| P,X        | WO 96 36010 A (ADVANCED DEPOSITION TECHN. INC.) 14 November 1996<br>see claims 1,7,13,18,19; figures 1-4,6A<br>--- | 1-3,22                |
| A          | US 5 063 418 A (SHURTZ, II ET AL.) 5 November 1991<br>see abstract; figures 1,2<br>---                             | 1,22                  |
| A          | DE 42 05 827 A (ANGEWANDTE DIGITAL ELEKTRONIK GMBH) 2 September 1993<br>see claims 1-4; figure 1<br>---            | 1,22                  |
| A          | DE 41 02 435 A (SIEMENS AG) 6 August 1992<br>-----   | 1,22                  |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/ 18769

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see annexed sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-3, 22-25

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 96/ 18769

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

1. Claims 1-3, 22-25 : Security device with metallic pattern on a substrate.
2. Claims 4-8: Security device with an integrated circuit on a substrate.
3. Claims 9-13: Method of authenticating an article with an hologramm.
4. Claims 14-21: Method of authenticating an article by measuring the capacitance of a metal pattern.

# INTERNATIONAL SEARCH REPORT

Internat. Application No

PCT/US 96/18769

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---------------------|----------------------------|---------------------|
| WD 9636010 A                              | 14-11-96            | NONE                       |                     |
| US 5063418 A                              | 05-11-91            | NONE                       |                     |
| DE 4205827 A                              | 02-09-93            | DE 4305571 A               | 25-08-94            |
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